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EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/676,649
Filing Date: September 29, 2000
Appellant(s): SCHINNER ET AL.

Michael H. Jester
Reg. No. 28,022
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/07/2004.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The rejection of claims 1, 2, 4-25 stands or falls together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

6,122,411	09-2000	SHEN ET AL.
6,282,605	08-2001	MOORE, TERRILL
6,433,820	08-2002	KOIDE ET AL.
5,481,303	01-1996	UEHARA, RYO
2003/0058355	03-2003	WONG ET AL.
6,233,010	05-2001	ROBERTS ET AL.
6,603,509	08-2003	HARUKI, TOSHINOBU

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 2, 4, 6, 8, 11-14, 16, 18, 20, 21 are rejected under 35 U.S.C. 102(a) and 102(e) as being anticipated by Shen et al. (US Patent # 6,122,411).

[Claim 1]

A digital still camera (figure 1: 10), comprising:

an image sensor (figure 1A: 20) mounted in a housing for receiving light and generating output signal representative of an image of an object or a scene of interest (col. 2 lines 65-67) [It is

inherent that an image sensor and other circuitry associated with it is enclosed in a housing for a digital camera];

a processing circuit (figure 1B: 26) mounted in the housing and connected to the image sensor for processing the output signals from the image sensor (Col. 3, lines 9-12).

a memory (figure 1C: 32) mounted in the housing;

a control circuit (figures 1A and 1B: 28 and 34) mounted in the housing and connected to the processing circuit for successively generating a plurality of image files corresponding to a plurality of images and storing the image files in the memory in accordance with a selected one of a plurality of picture modes (col. 3 lines 6-15, col. 4 lines 14-35),

the control circuit determining a remaining picture count after each image file is generated based on a predetermined decrement number corresponding to an actual image file size of each image file (col. 4 lines 20-35)[The MPU 34 compares the total number of pictures taken with a predetermined number and decrements the remaining picture count after each low or high resolution image is taken. The low or high-resolution pictures corresponds to an actual image file size of each image file]; and

means (figure 1A: 36) mounted in the housing for indicating the remaining picture count to a user (figure 3a, 3b: 50, 52 col. 3 lines 23-30).

[Claim 2]

The camera of Claim 1 wherein the indicating means includes a display (figure 1A: 36) for providing a visual representation of the remaining picture count (figure 3a, 3b: 50, 52 col. 3 lines 27-30).

[Claim 4]

The camera of Claim 3 wherein the control circuit uses a look up table to retrieve the predetermined decrement number corresponding to each image file size (col. 3 lines 32-40)[8-bit MPU 28 reads the EPROM 40 which can be read as a lookup table and stores the number of pictures that can be taken in each resolution. The predetermined decrement number depends upon whether the image is a low or high-resolution image, which means that the predetermined decrement number corresponds to the size of image file].

[Claim 6]

The camera of Claim 1 wherein the control circuit causes the indicating means (figure 1: 36, The indicating means is a display device) to indicate that the remaining picture count is zero when the control circuit (figures 1A and 1B: 28 and 34) determines that a remaining capacity of the memory is insufficient to store an image file of a predetermined maximum image file size (col. 3 lines 27-58, col. 4 lines 30-35).

[Claim 8]

The camera of Claim 1 wherein the plurality of picture modes includes a plurality of picture resolutions (col. 3 lines 27-58 figure 4: S100).

[Claim 11]

A method of operating a digital still camera (figure 1: 10), comprising the steps of selecting one of a plurality of picture modes on a digital still camera (col. 4 lines 36-39 figure 4: S100);

taking a picture with the camera (col. 2 lines 65-67);

storing an image file representing the picture in a memory in the camera in accordance with the selected picture mode (figure 4: steps 108 and 116);

determining a remaining picture count based on a predetermined decrement number corresponding to an actual image file size of the image file (col. 4 lines 20-35)[The MPU 34 compares the total number of pictures taken with a predetermined number and decrements the remaining picture count after each low or high resolution image is taken. The low or high-resolution pictures corresponds to an actual image file size of each image file]
and indicating the remaining picture count to a user (figure 3a, 3b: 50, 52 col. 3 lines 27-30).

[Claim 13]

The method of Claim 11 wherein the remaining picture count is initially determined based on a capacity of the memory before any image files have been stored in the memory and thereafter the remaining picture count is decremented after each image file has been stored in the memory by a predetermined number corresponding to the actual image file size of the image file just stored (col. 4 lines 20-35, figure 4)[Initially the MPU 34 determines the available capacity in steps S102 and S110 and depending on the low or high resolution, it indicates the remaining picture count on the display device 56 and keeps on decrementing the remaining picture count after each image is taken. The low or high-resolution pictures corresponds to an actual image file size of each image file.].

Regarding claims 12,14,16,18 these are method claims corresponding to apparatus claims 2,4,6 and 8 respectively. Therefore these claims are analyzed and rejected based on the apparatus claims 2,4,6 and 8.

Shen teaches the following:

A digital still camera (figure 1: 10), comprising:

an image sensor (figure 1A: 20) mounted in a housing for receiving light and generating output signals representative of an image of an object or a scene of interest (col. 2 lines 65-67) [It is inherent that an image sensor and other circuitry associated with it is enclosed in a housing for a digital camera];

a processing circuit (figure 1B: 26) mounted in the housing and connected to the image sensor for processing the output signals from the image sensor (col. 3 lines 9-12);

a memory (figure 1C: 32) mounted in the housing;

a control circuit (figures 1A and 1B: 28 and 34) mounted in the housing and connected to the processing circuit for successively generating a plurality of image files corresponding to a plurality of images and storing the image files in the memory in accordance with a selected one of a plurality of picture modes selected from the group consisting of a plurality of picture resolutions (col. 3 lines 6-15, col. 4 lines 14-35),

the control circuit initially determining the remaining picture count based on a capacity of the memory before any image files have been stored in the memory and thereafter the control circuit decrementing the remaining picture count after each image file has been stored in the memory by a predetermined number each corresponding to one of a size of the image file just stored (col. 4 lines 20-35, figure 4)[Initially the MPU 34 determines the available capacity in steps S102 and S110 and depending on the low or high resolution, it indicates the remaining picture count on the display device 56 and keeps on decrementing the remaining picture count after each image is taken],

and the control circuit causing the remaining picture count to be set to zero when the control circuit determines that a remaining capacity of the memory is insufficient to store an image file of a predetermined maximum image file size (col. 4 lines 30-35); and

means mounted in the housing for indicating the remaining picture count to a user (figure 3a, 3b: 50, 52 col. 3 lines 27-30).

the control circuit determining a remaining picture count after each image file is stored in the memory based on a plurality of look up tables each corresponding to one of the plurality of picture modes (col. 3 lines 32-40)[8-bit MPU 28 reads the EPROM 40 which can be read as a lookup table and stores the number of pictures that can be taken in each resolution. The predetermined decrement number depends upon whether the image is a low or high-resolution image, which means that the predetermined decrement number corresponds to the size of image file]. Shen teaches memory (EPROM 40) which can be read as a lookup table and stores the number of pictures that can be taken in each resolution. The 4-bit MPU (figure 1A: 34) reads low-resolution picture, 8-bit MPU (figure 1B: 28) reads high-resolution pictures. Therefore, the two work together as multiple reads to indicate high/low resolution mode and also number of pictures that can be taken in each resolution. Thus, the read from EPROM 40 is similar to reading multiple LUTs as claimed (col. 3 lines 27-58).

[Claim 21]

A digital still camera (figure 1: 10), comprising:

an image sensor (figure 1A: 20) mounted in a housing for receiving light transmitted through a lens and generating output signals representative of an image of an object or a scene of

interest (col. 2 lines 65-67) [It is inherent that an image sensor and other circuitry associated with it is enclosed in a housing for a digital camera];

a processing circuit (figure 1B: 26) mounted in the housing and connected to the image sensor for processing the output signals from the image sensor (Col. 3 lines 9-12);

a memory (figure 1C: 32) mounted in the housing;

a control circuit (figures 1A and 1B: 28 and 34) mounted in the housing and connected to the processing circuit for successively generating a plurality of image files corresponding to a plurality of images and storing the image files in the memory in accordance with a selected one of a plurality of picture modes (col. 3 lines 6-15, col. 4 lines 14-35), the control circuit determining a remaining picture count by searching a look up table corresponding to the selected picture mode and using an actual image file size of an image file just generated (col. 4 lines 20-35, col. 3 lines 32-40)[The MPU 34 compares the total number of pictures taken with a predetermined number and decrements the remaining picture count after each low or high resolution image is taken. 8-bit MPU 28 reads the EPROM 40 which can be read as a lookup table and stores the number of pictures that can be taken in each resolution. The low or high-resolution pictures correspond to an actual image file size of each image file just generated as recited in the amended claim];

and

means mounted in the housing for indicating the remaining picture count to a user (figure 3a, 3b: 50, 52 col. 3 lines 27-30).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US Patent # 6,122,411).

[Claim 5]

The camera of Claim 1 wherein the control circuit utilizes a plurality of look up tables each corresponding to one of the plurality of picture modes. Shen teaches memory (EPROM 40) which can be read as a lookup table and stores the number of pictures that can be taken in each resolution. The 4-bit MPU (figure 1A: 34) reads low-resolution picture, 8-bit MPU (figure 1B: 28) reads high-resolution pictures. Therefore, the two work together as multiple reads to indicate high/low resolution mode and also number of pictures that can be taken in each resolution. Thus, the read from EPROM 40 is similar to reading multiple LUTs as claimed (col. 3 lines 27-58).

4. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US Patent # 6,122,411) in view of Wong et al. (US PG-PUB # 2003/0058355).

[Claim 15]

Shen teaches the limitations of claim 11 but fails to teach ".... wherein the image files are stored in a removable memory." However these limitations are well known in the art as evidenced in Wong (Paragraph 0010). Therefore taking the combined teachings of Shen and Wong it would have been obvious to one skilled in the art to have image files be stored in a removable memory.

Doing so would allow us to use the memory card for subsequent processing of the image data as taught in Wong.

5. Claims 7, 9, 10, 17, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US Patent # 6,122,411) in view of Uehara (US Patent # 5,481,303).

[Claim 7]

Shen teaches the limitations of claim 1 but fails to teach ".... wherein the control circuit compresses an output from the processing circuit in generating the plurality of image files". However these limitations are well known in the art as evidenced in Uehara (col. 3 lines 34-38, figure 1: 7). Therefore taking the combined teachings of Shen and Uehara it would have been obvious to one skilled in the art that the control circuit compresses an output from the processing circuit in generating the plurality of image files. Doing so would be advantageous because by compressing the images the storage space can be used more efficiently.

[Claim 9]

Shen teaches the limitations of claim 1 but fails to teach ".... wherein the plurality of picture modes includes a plurality of data compression levels." However these limitations are well known in the art as evidenced in Uehara (col. 1 lines 20-23). Therefore taking the combined teachings of Shen and Uehara it would have been obvious to one skilled in the art that plurality of picture modes includes a plurality of data compression levels. Doing so would allow us to use memory more efficiently.

[Claim 10]

Shen teaches ".... wherein the plurality of picture modes includes a plurality of pre-set combinations of a selected one of a plurality of picture resolutions (col. 4 lines 36-39 figure 4:

S100)" but fails to teach a selected one of a plurality of data compression levels. Shen et al. do not teach a plurality of data compression levels. However these limitations are well known in the art as evidenced in Uehara (col. 1 lines 20-23). Therefore taking the combined teachings of Shen and Uehara it would have been obvious to one skilled in the art that plurality of picture modes includes a plurality of data compression levels. Doing so would allow us to use the memory more efficiently.

Regarding claims 17 and 19, these are method claims corresponding to apparatus claims 7 and 9 respectively. Therefore these claims are analyzed and rejected based on the apparatus claims 7 and 9.

6. Claims 22, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US Patent # 6,122,411) in view of Moore (US Patent # 6,282,605).

[Claim 22]

Shen teaches the limitations of claim 21 but fails to teach wherein the look up table is searched in a linear fashion. However this limitation is well known in the art as taught by Moore (col. 6 lines 42-46)[The flash memory 20 disclosed in figure 1 can be considered as a LUT because it can be searched with a binary or linear search algorithm for a particular address]. Therefore taking the combined teachings of Shen and Moore it is obvious to one skilled in the art to have a look up table, which is searched in a linear fashion. Doing so is advantageous because linear search is simpler.

[Claim 23]

Shen teaches the limitations of claim 21 but fails to teach wherein the look up table is searched in a binary fashion. However this limitation is well known in the art as taught by Moore (col. 6

lines 42-46). [The flash memory 20 disclosed in figure 1 can be considered as a LUT because it can be searched with a binary or linear search algorithm for a particular address]. Therefore taking the combined teachings of Shen and Moore it is obvious to one skilled in the art to have a look up table, which is searched in a binary fashion. Doing so is advantageous because binary search is faster.

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US Patent # 6,122,411) in view of Roberts et al. (US Patent # 6,233,010).

[Claim 24]

Shen teaches the limitations of claim 21 but fails to teach ".... wherein the control circuit determines the remaining picture count by performing a logical AND operation between a pair of memory addresses". However this limitation is well known in the art as taught by Roberts (col. 5 lines 13-26, figure 6A: 60a and 60b)[Depending upon the position of the switches 14A and 14B which represent a word or an address as claimed their output is logically ANDed to determine whether the picture is high resolution or low resolution which means that the remaining picture count can be indicated depending upon the resolution]. Therefore taking the combined teachings of Shen and Roberts it would have been obvious to one skilled in the art to have a control circuit that determines the remaining picture count by performing a logical AND operation between a pair of memory addresses. Doing so would allow us to determine the remaining picture count in an efficient way because only one logical AND operation is needed.

8. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US Patent # 6,122,411) in view of Haruki (US Patent # 6,603,509).

[Claim 25]

Shen teaches a look up table includes a plurality of different free memory space values and the look up table is searched after each image file is generated (col. 3 lines 34-40)[EPROM 40 which can be read as a lookup table includes a plurality of memory space values corresponding to high and low resolution and is searched by the MPU 28 after each image file is taken]

Shen fails to teach locating a pair of free space memory values that bracket an actual free memory space value determined by the control circuit based on the size of each image file that is stored". However this limitation is well known in the art as taught by Haruki (col. 4 lines 15-27, figures 2A and 3)[The 2-cluster area searched as a vacant area in figure 2(b) follows a free memory space area and is determined by the control circuit based on the size of the program p]. Therefore taking the combined teachings of Shen and Haruki it would have been obvious to one skilled in the art to have a pair of free space memory values that bracket an actual free memory space value determined by the control circuit based on the size of each image file. Doing so would allow us to search additional area required for the control program into the memory.

(11) Response to Argument

1. Appellant argues with respect to claims 1 and 11 that Shen et al. teach that the number of pictures that can be taken is determined based upon a predetermined standard image file size for high resolution images and a predetermined standard image file size for low resolution images. The number of pictures that can be taken in each resolution of Shen et al. does not depend upon a predetermined decrement number corresponding to an actual file size of an image taken with the camera, as required by amended Claims 1 and 11. The Examiner disagrees. As stated in col. 3 lines 32-39, the number of pictures that can be taken in each resolution (high and low) are stored in an EPROM 40. When the camera is turned on, it recalls the total number of pictures in each

resolution that can be taken as well as the total memory used based upon this information and displays on the LCD 36. Shen et al. further teaches, according to one example, that the flash memory 32 can save 8 high resolution or 32 low-resolution pictures (col. 3 lines 59-65) and a condition when the available capacity in memory 32 is just enough to store 3 low-resolution pictures and 0 high-resolution pictures (col. 3 line 65- col. 4 line 16). Therefore if the camera is in a low-resolution mode it will keep track of how many more pictures that can be taken in each resolution mode by accessing the EPROM 40. The 4-bit microprocessor does this by incrementing a memory storage location after each picture is taken. The MPU 34 then compares the total number of pictures taken with a predetermined number which is the same as the actual file size of the image that would be just generated by the camera and determines if another high or low resolution image can be taken by decrementing that predetermined number (same as the actual file size of the image that would be just generated by the camera) in each resolution from the total number of images that have been taken for each resolution (col. 4 lines 17-35). Therefore Shen et al. does teach the recited limitations of claim 1,"the control circuit determining a remaining picture count after each image file is generated based on a predetermined decrement number corresponding to an actual image file size of each image file" and claim 11 "determining a remaining picture count based on a predetermined decrement number corresponding to an actual image file size of the image file".

2. Appellant argues with respect to claim 21 that Shen et al. does not teach or suggest determining a remaining picture count by searching a lookup table corresponding to the selected picture mode and using an actual image file size of an image file just generated. The Examiner disagrees. EPROM 40 is being broadly read as a lookup table because it is used to keep track of how many more pictures of each resolution that can be taken by incrementing a memory storage location (col. 4 lines 17-35) after each picture is taken which is a typical function of LUTs corresponding to the selected picture mode (low or high resolution mode) and using an actual image file size of an image file just generated (same as the actual file size of the image that would be just generated by the camera).

3. Appellant argues that the predetermined standard image file size for low resolution and predetermined standard image file size for high resolution as taught in Shen reference is different from the actual image file size as recited in independent claims 1, 11 and 21. Specifically Appellant argues that "actual image file size" means a unique number of kilobytes of an image file just generated as opposed to some predetermined standard number. The Examiner disagrees. An "actual image file size" is a very broad term. For one skilled in the art any actual image file has a particular size, which translates into a unique number of kilobytes for that image file. This is true for a predetermined standard image file size for low resolution and a predetermined standard image file size for high resolution as taught in Shen reference. Therefore when the camera of Shen reference is in a low-resolution (or high resolution) mode, it decrements the images based upon the actual image file size for the low resolution (or high resolution) image file just generated and the predetermined number (same as the actual file size of the image that would be just generated by the camera).

4. Appellant argues with respect to claim 20 that Shen et al. relies upon predetermined standard image file sizes, and not the size of the image file just stored, which is a unique number for a picture just taken. The Examiner disagrees. An "actual image file size" is a very broad term. For one skilled in the art any actual image file has a particular size, which translates into a unique number of kilobytes for that image file. This is true for a predetermined standard image file size for low resolution and a predetermined standard image file size for high resolution as taught in Shen reference. Therefore when the camera of Shen reference is in a low-resolution (or high resolution) mode, it decrements the images based upon the actual image file size for the low resolution (or high resolution) image file just generated and the predetermined number (same as the actual file size of the image that would be just generated by the camera).

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,
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January 17, 2005

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